

1     **III. VERIZON VA’S STUDIES ARE FORWARD-LOOKING AND LONG-RUN.**  
2     **(JDPL ISSUES II-1-A TO II-1-C; II-2-A TO II-2-C)**

3     **A. Verizon’s Studies Appropriately Assume That the Efficient, Forward-Looking**  
4     **Technology Has Been Deployed Network-Wide Over Time.**  
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6

7     **Q. Ms. Murray argues that instead of using a “reconstructed local network,” Verizon**  
8     **VA’s cost studies are “incremental” and “are based on assumptions about the**  
9     **technology mix that the company will employ over a three-year planning horizon**  
10    **(or, in some cases, the technology mix that the company has employed over the**  
11    **past three years).” [Murray Rebuttal at 2, 13-15.] What is your response?**

12    A. These claims are misleading because, as Drs. Gordon and Shelanski explained in their  
13    direct testimony: (1) Verizon VA uses a three-year planning period only to identify the  
14    forward-looking technology that it believes is most efficient to deploy in the network *in*  
15    *new construction*;<sup>20/</sup> and (2) Verizon uses a long-run approach in which it assumes that  
16    this forward-looking technology mix is used *throughout its entire network*.<sup>21/</sup> In that  
17    sense, Verizon VA’s model does use a “reconstructed local network.” This approach is  
18    consistent with the Commission’s mandate that TELRIC studies be based on the most

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<sup>20/</sup> See Gordon Direct at 19 (“Verizon VA, rather than assuming its existing technology mix, generally estimated the technology mix that will be deployed on a going forward basis where it builds new facilities or replaces existing ones. Verizon VA, based on company planning guidelines and expected deployments, determined what mix of technologies it would deploy in these situations taking account of technology and other trends that it expects to emerge over a three-year study period.”).

<sup>21/</sup> *Id.* at 21 (“Furthermore, Verizon VA’s recurring cost model assumes that the technologies it expects to deploy over the study period have been fully deployed throughout the network, even though they will be in place only in parts of the network by the end of the study period.”).

1 efficient technology currently being deployed in the incumbent's network.<sup>22/</sup> Indeed,  
2 the Commission recently explained to the Supreme Court that TELRIC is intended to  
3 model costs based on "equipment that carriers are already using to upgrade and expand  
4 their networks."<sup>23/</sup>

5  
6 Verizon VA develops costs that reflect the fact that, if it were to actually deploy  
7 such a hypothetical forward-looking network, it would do so incrementally over time in  
8 a world of uncertain demand and technological change. This is reflected in sizing,  
9 utilization, and equipment discount assumptions used to estimate cost of the forward-  
10 looking technology. Competitive pressures on the value of the network do not  
11 immediately drive it to the cost of the current least-cost replacement technology. Also  
12 as Dr. Shelanski has explained, if they did, then depreciation values and cost of capital  
13 would have to be much greater than those assumed by AT&T/WorldCom.<sup>24/</sup>

14  
15 **Q. But what about Ms. Murray's claim that Verizon VA's study is not "long-run"**  
16 **because it considers deployment options and equipment prices likely to occur over**  
17 **a three-year period? [Murray Rebuttal at 14-15.]**

18 A. First, as noted above, while Verizon VA uses the three-year study period to determine  
19 the forward-looking technology mix, its recurring cost studies assume that this mix is

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<sup>22/</sup> *Local Competition Order* at 15848-49 ¶ 685.

<sup>23/</sup> *Verizon Communications, Inc. v. FCC*, No 00-511, FCC Reply Brief at 6 (July 2001) ("FCC Reply Br.").

<sup>24/</sup> Shelanski Direct at 12; Shelanski Rebuttal at 7-9.

1        deployed network-wide, even though Verizon VA's real network will not have such a  
2        mix at the end of the three years or any time soon thereafter. Thus, Ms. Murray's  
3        apparent suggestion that Verizon VA's use of a three-year planning period renders its  
4        study something other than long-run is incorrect. Second, the use of a three-year  
5        planning period to determine a forward-looking technology mix is eminently reasonable  
6        given the rapid technological change that characterizes telecommunications. Trying to  
7        look ahead to determine the best technology further in the future would amount, as  
8        AT&T/WorldCom's model often does, to speculation and hypothesis. Third, in its  
9        criteria that guided its development and selection of a universal service model (a  
10       radically modified version of which Ms. Murray endorses in this proceeding), the  
11       Commission stated that "the study or model, however, must be based upon an  
12       examination of the current cost of purchasing facilities and equipment . . . ."<sup>25/</sup> On this  
13       basis, Verizon VA's look three years into the future is even more "forward-looking"  
14       than what the Commission seems to have required of its own model.

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<sup>25/</sup> Report and Order, *In the Matter of Federal-State Joint Board on Universal Service*, 12 FCC Rcd 8776, 8913 ¶ 250 (1997).

1        **B. Verizon VA's Inputs and Assumptions Are Appropriately Forward-Looking.**

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3        **Q.     Ms. Murray claims that the “Commission cannot presume that Verizon’s booked**  
4        **expenses and its current network architecture and technology are efficient . . .”**  
5        **and that the incentives of price cap regulation are insufficient because Verizon VA**  
6        **was not under price cap regulation in Virginia prior to 1995. [Murray Rebuttal at**  
7        **3, 20-21.] What is your response?**

8        **A.     First, as previously described, Verizon VA’s cost studies do not mirror the technologies**  
9        **in its current network. Rather, the studies reflect the network-wide deployment of the**  
10       **technology mix that Verizon VA — operating under price cap regulation — expects to**  
11       **deploy over the next three years. Thus, the fact that Verizon VA was not subject to**  
12       **state price cap regulation prior to 1995 does not change that its technology choices**  
13       **going forward are subject to the efficiency incentives of price cap regulation, and it is**  
14       **those choices on which Verizon VA’s studies are based. Indeed, a number of the**  
15       **technologies at issue here did not even exist in their current forms in 1995.<sup>26/</sup>**

16  
17                Second, the evidence does not suggest that the onset of state price cap regulation  
18                and the accompanying efficiency incentives has dramatically changed the cost structure  
19                of Verizon VA’s network. To take one example, as the Verizon VA Cost Panel

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<sup>26/</sup>     In addition, a substantial share of Verizon VA’s investment has taken place after the onset of the state price cap plan. Based on the data in Verizon VA’s ARMIS 43-03 reports for 1994-2000, since the beginning of 1995, Verizon Virginia’s total investment is about \$3.2 billion, which is more than what AT&T/WorldCom’s cost model produces for the entire investment to reconstruct the network. This additional investment accounts for 44 percent of Verizon Virginia’s total-plant-in-service and 70 percent of the value of that plant (net investment).

1 explains in its surrebuttal testimony, fill factors have remained relatively constant over  
2 the last several years.<sup>27/</sup> If Verizon VA had been using engineering practices that  
3 generated inefficiently low fill factors prior to the onset of state price cap regulation,  
4 then one would expect to have seen an increase in such factors by now as a result of the  
5 incentives created by price caps. The fact that these factors have remained stable  
6 suggests that they in fact are set at efficient levels and that Verizon VA's assumption  
7 that such factors generally will not change significantly is reasonable.

8  
9 Finally, state price cap regulation is not, of course, the only incentive Verizon  
10 VA has had and currently has to act efficiently. For example, the company has been  
11 subject to federal price cap regulation since 1991.<sup>28/</sup> Competition itself, particularly in  
12 data and other advanced services, has created strong efficiency incentives and will  
13 increasingly do so. Verizon VA certainly has strong incentives going forward to make  
14 technology and other investment decisions as efficiently as possible. Because its  
15 studies are based on those same forward-looking investment decisions, those studies are  
16 appropriately forward-looking and are most likely to model the costs that Verizon VA  
17 expects to incur in providing UNEs.

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<sup>27/</sup> VZ-VA Recurring Panel Surrebuttal at § IV.E.

<sup>28/</sup> See generally Second Report and Order, *Policy and Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. 6786 (1990).

1   **Q.     What is your response to Ms. Murray’s claim that Verizon VA’s studies do not**  
2       **assume the most efficient mix of Digital Loop Carrier technologies? [Murray**  
3       **Rebuttal at 24-28.]**

4   **A.     Verizon VA’s models incorporate the mix of IDLC and UDLC that it expects to deploy**  
5       over the planning period. Although Ms. Murray acknowledges that Verizon VA uses  
6       the mix of IDLC it expects to deploy going forward, she asserts that the mix of IDLC  
7       and UDLC is based on what Verizon VA had deployed in new plant over the *past* three  
8       years.<sup>29/</sup> But, as Verizon VA’s cost panel explained, Verizon VA expects that the same  
9       mix will be used in new plant going forward over the planning period.<sup>30/</sup> Verizon VA  
10      then projects that this mix is deployed network-wide, which results in a higher  
11      percentage of IDLC than Verizon VA expects to have in place for the foreseeable  
12      future. Accordingly, Verizon VA’s approach is forward-looking.

13  
14           With respect to GR-303, we understand that Verizon VA’s studies assume a  
15      greater percentage than what it in fact expects to deploy in the foreseeable future.<sup>31/</sup> In  
16      reality, little GR-303 will be used because, among other things, greater deployment of  
17      GR-303 would require greater investment in and replacement of related complementary  
18      switching facilities than would be efficient to deploy over the foreseeable future. This  
19      is yet another illustration of why cost models should not assume it would be efficient to

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<sup>29/</sup> Murray Rebuttal at 25.

<sup>30/</sup> VZ-VA Panel Direct at 97-98.

<sup>31/</sup> *Id.* at 91, 99.

1 deploy only the most up-to-date technology at a single time on a wholesale basis.<sup>32/</sup> Ms.  
2 Murray appears to concede that Verizon VA's incremental approach to deployment of  
3 GR-303 is rational and efficient.<sup>33/</sup> She again argues, however, that this efficiency is  
4 irrelevant because a carrier instantaneously building a new network from scratch would  
5 deploy greater amounts of GR-303. However, as we have explained, such an  
6 instantaneous approach does not reflect how a real-world, efficient carrier acts to  
7 minimize costs over the long run and is not an economically appropriate interpretation  
8 of the Commission's TELRIC rules.

9  
10 **Q. Ms. Murray argues that Verizon's studies "reflect to a substantial degree the**  
11 **characteristics of its network architecture determined in a survey of company**  
12 **engineers in the early 1990s . . . ." [Murray Rebuttal at 2, 28-30.] Does this**  
13 **criticism imply that it is not using a forward-looking approach?**

14 **A.** No. The "characteristics of its network architecture" that were the subject of the survey  
15 were factors such as the characteristics of distribution and feeder routes and structure  
16 types. As Verizon VA's cost panel explains, these characteristics are extremely stable  
17 and very unlikely to change for the foreseeable future.<sup>34/</sup> Thus, reliance on these very  
18 basic characteristics of Verizon VA's network configuration is perfectly consistent with

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<sup>32/</sup> Shelanski Direct at 12.

<sup>33/</sup> Murray Rebuttal at 26.

<sup>34/</sup> VZ-VA Recurring Panel Surrebuttal at § IV.A.

1 a long-run, forward-looking study.<sup>35/</sup> Further, the network architecture assumed by  
2 Verizon VA includes a substantially different plant mix than the one that Verizon VA  
3 actually had in place in the early 1990s; in fact, as explained above, the mix assumed in  
4 the study is even different than the mix that will be in place by the end of the study  
5 period. Indeed, the percentage of fiber assumed in the study is more than two times  
6 larger than the percentage that Verizon VA expects will be in place three years from  
7 now, let alone what was in place in the early 1990s.<sup>36/</sup>

8  
9 Moreover, as Dr. Gordon explained in his direct testimony, which Dr. Tardiff  
10 has adopted:

11 [C]onducting engineering surveys of outside plant characteristics,  
12 such as average loop length, allows the analysis to capture  
13 implicitly the effects of: (1) natural characteristics — such as  
14 bodies of water, hills, and surface type; (2) man-made  
15 characteristics — such as roads, buildings, and major facilities like  
16 airports; and (3) governmental requirements — such as zoning  
17 restrictions. All of these factors are of course reflected in the  
18 current network, and, as long as the cost study includes  
19 adjustments to reflect expected changes in network design, the  
20 study will be forward-looking.

21 \* \* \*

22  
23  
24 This aspect of the process is crucial to capture realistically  
25 attainable efficiencies — as opposed to hypothetical but  
26 unattainable savings.  
27

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<sup>35/</sup> This anchoring of the Verizon VA cost model in solid real-world experience can be viewed as a form of validation. In contrast, as Dr. Tardiff explains in his rebuttal testimony, the AT&T/WorldCom model does not even attempt to compare the network design it produces with real-world benchmarks. Tardiff Rebuttal at § IV.

<sup>36/</sup> Shelanski Direct at 22.

The ILEC's experience and planning guidelines are most likely to capture the cost implications of coping with [demand uncertainties] and numerous other realities. As a result, Verizon VA's experience — embodied in its network characteristics and expectations about how those characteristics can be adapted to reflect future technologies — is most apt to capture the costs that will be incurred in the future. By contrast, complete replacement cost models based on assumptions of what "an efficient" but hypothetical firm could do starting from scratch have almost no chance of capturing these complexities.<sup>37/</sup>

**Q. What about Ms. Murray's claim that Verizon VA should not have treated existing feeder and distribution routes as fixed? [Murray Rebuttal at 28-30.]**

A. Like many of her other assertions, Ms. Murray's argument here is premised on the assumption that a long-run, forward-looking cost model should employ an instantaneous "scorched node" approach that rebuilds a network from scratch as though an efficient carrier would simply ignore the existence of existing feeder routes. As we have explained, this is incorrect. Ms. Murray's premise is particularly outrageous in this context, since feeder and distribution routes are a basic part of network design and extremely stable: these routes are not going to change in the foreseeable future because it would be highly inefficient to do so. Such routes are accordingly fundamental to the forward-looking costs that Verizon VA will incur in providing elements to the CLECs. Moreover, as the cost panel further explains, using completely new routing likely would result in *greater* costs today due to, for example, the higher costs of obtaining the

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<sup>37/</sup> Gordon Direct at 16-17.

1 necessary rights of way, digging up streets to lay cable, and increased regulation.<sup>38/</sup>

2 AT&T/WorldCom's model does not fully take these costs into account.

3  
4 The Commission itself has noted that "TELRIC should take as a given the  
5 'existing network design'" and should take account of "past decisions regarding the  
6 most fundamental aspects of [ILECs'] existing networks."<sup>39/</sup> In the First Report and  
7 Order, the Commission similarly observed that assumptions under TELRIC should be  
8 "compatible with the [ILEC's] existing infrastructure."<sup>40/</sup> Ms. Murray's proposal is thus  
9 contrary to both the economically appropriate application of the TELRIC rules and  
10 sound economics.

11  
12 **Q. Ms. Murray claims that the utilization factors used in Verizon VA's studies are**  
13 **insufficiently forward-looking. [Murray Rebuttal at 30-32.] How do you respond?**

14 A. As explained by Verizon VA's cost panel, Verizon VA's costs studies assumed that  
15 utilization factors will generally not change significantly for the foreseeable future  
16 based on the judgment that there were no currently available technological  
17 improvements or other factors likely to lead to change.<sup>41/</sup> Indeed, as noted above, the  
18 fact that fill factors have generally remained stable since the onset of price cap

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<sup>38/</sup> VZ-VA Recurring Panel Surrebuttal at § IV.A.

<sup>39/</sup> FCC Reply Br. at 4-5

<sup>40/</sup> *Local Competition Order*, at 15848-49, ¶ 685.

<sup>41/</sup> VZ-VA Panel Direct at 39; VZ-VA Recurring Panel Surrebuttal at § IV.E.

1 regulation in Virginia supports the judgment that they are at efficient levels. Ms.  
2 Murray cites no reason to believe otherwise.

3  
4 Further, as Dr. Shelanski explains in his rebuttal testimony,<sup>42/</sup> Ms. Murray's  
5 suggestion that unit costs should be based on current and future demand (so that current  
6 customers do not bear the costs of efficient spare capacity)<sup>43/</sup> is baseless. The costs of  
7 efficient spare capacity are current costs incurred by the incumbent from the time the  
8 investment is made. Preventing Verizon VA from recovering these efficient costs just  
9 because they are rationally made in anticipation of future demand would be contrary to  
10 long-run efficiency and to the objectives of TELRIC.

11  
12 **Q. Ms. Murray next suggests that Verizon VA's study uses too low a discount factor**  
13 **for switching equipment because it "does not reflect the price that Verizon would**  
14 **pay to reconstruct its network with new switches that would meet the entire**  
15 **current and reasonably foreseeable switching demand." [Murray Rebuttal at 33.]**  
16 **Do you agree?**

17 **A.** No. As Verizon VA's cost panel explained in its direct testimony, the forward-looking  
18 costs Verizon VA will incur for switching equipment will consist primarily of upgrades  
19 and growth additions.<sup>44/</sup> Verizon VA's cost study assumes the mix of upgrades, growth

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<sup>42/</sup> Shelanski Rebuttal at 12-14.

<sup>43/</sup> Murray Rebuttal at 32-33.

<sup>44/</sup> VZ-VA Panel Direct at 189-94.

1 additions, and new switches that it expects to purchase on a forward-looking basis. Ms.  
2 Murray apparently suggests that Verizon VA pretend that it would buy all new switches  
3 to reconstruct its network. This is simply incorrect.  
4

5 First, Verizon VA would have no reason, acting efficiently, to engage in such  
6 wholesale replacement. Rather, carriers engage in incremental replacement and  
7 expansion of switching plant, and Verizon VA's studies capture the discount it would  
8 expect to receive using such an incremental approach. Second, contrary to what Ms.  
9 Murray implicitly assumes, any real-world carrier does not have a network consisting  
10 only of new switches without any additions, modules, or upgrades. Rather, efficient  
11 carriers incrementally expand switching capacity using such equipment and, as Ms.  
12 Murray acknowledges, the discount factor for this equipment is lower than that for new  
13 switches. Indeed, as this Commission has recognized, vendors will provide large  
14 discounts on a new switch so that they can lock a company into purchasing numerous  
15 upgrades at higher prices.<sup>45/</sup> Accordingly, using only a "new switch discount" would by  
16 definition understate Verizon VA's forward-looking costs. Thus, it is not surprising  
17 that the Commission has told the Supreme Court that, contrary to Ms. Murray's  
18 apparent view, TELRIC "does *not* assume that an efficient carrier would provide the  
19 switching element with large-capacity switches, rather than with a mix of smaller  
20 switches and so-called 'add-on modules.'"<sup>46/</sup> Third, as described in Dr. Shelanski's

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<sup>45/</sup> VZ-VA Recurring Panel Surrebuttal at § VII.A.2.

<sup>46/</sup> FCC Reply Br. at 9 n.7.

1 testimony, any costing methodology that assumed carriers would engage in wholesale  
2 replacement of switches whenever technology advanced or growth required additional  
3 capacity would have to assume an extremely high rate of depreciation and cost of  
4 capital.<sup>47/</sup>

5  
6 **Q. Is Ms. Murray’s claim that Verizon’s forward-looking-to-current factor “adjusts**  
7 **its projection of forward-looking expenses to make them equal to current**  
8 **expenses” correct? [Murray Rebuttal at 35.]**

9 A. No. As explained in greater detail in the Verizon VA Surrebuttal Cost Panel, Ms.  
10 Murray misunderstands the forward-looking-to-current (FLC) factor.<sup>48/</sup> Verizon VA’s  
11 studies calculate annual cost factors by comparing expenses *already adjusted to be*  
12 *forward-looking* to embedded investment.<sup>49/</sup> If these ACFs were then applied to  
13 forward-looking TELRIC investment, which are usually lower than “embedded  
14 investments,” then in effect the TELRIC adjustment would be double counted. The  
15 FLC, which is a ratio of embedded to TELRIC investments, corrects for that double  
16 counting. The key point is that, contrary to Ms. Murray’s claims, the expenses

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<sup>47/</sup> Shelanski Direct at 12.

<sup>48/</sup> VZ-VA Recurring Panel Surrebuttal at § III.A.

<sup>49/</sup> *See id.* In contrast, while AT&T/WorldCom’s model also adjusts embedded investments to be forward-looking when estimating expense factors, it makes no attempt to verify that expenses are forward-looking. Rather, because the forward-looking adjustments used to convert embedded investments differ from the investment levels assumed in the model, the resulting expenses are systematically understated. Tardiff Rebuttal at § V.C.1.

1 generated by Verizon VA's model are forward-looking and lower than its "embedded"  
2 expenses.<sup>50/</sup>

3  
4 We note further that Ms. Murray's claim that expenses decline "automatically"  
5 as investment decreases is simplistic.<sup>51/</sup> There is no reason to assume that just because  
6 investments can be reduced by one-half that expenses associated with that investment  
7 automatically would be reduced by half. Indeed, Verizon VA's experience suggest that  
8 is often not the case.<sup>52/</sup>

9  
10 **Q. Do you agree with AT&T/WorldCom's claim that "in a reconstructed local**  
11 **network, Verizon would design its OSS to accommodate multiple providers from**  
12 **the start. Neither the entire capital cost of those OSS nor the ongoing maintenance**  
13 **cost for such systems would be attributable solely to competitors."**  
14 **[AT&T/WorldCom Rebuttal Panel at 154-55.]**

15 A. No. As explained in Verizon VA's prior testimony and again above, an economically  
16 appropriate interpretation of TELRIC should not require that Verizon VA assume a  
17 hypothetical network instantaneously constructed from scratch. The most rational and  
18 efficient course for Verizon was to modify its *existing* OSS to provide the functionality  
19 needed to provide UNEs to CLECs. Because Verizon incurred those costs solely to

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<sup>50/</sup> For the same reason, Ms. Murray's suggestion that Dr. Shelanski has misunderstood Verizon VA's cost studies (Murray Rebuttal at 36 n.47) is simply incorrect.

<sup>51/</sup> Murray Rebuttal at 36.

<sup>52/</sup> VZ-VA Recurring Panel Surrebuttal at § III.A.

1 support such wholesale services, it is economically correct that Verizon be able to  
2 recover those costs from CLECs in connection with providing UNEs. Moreover, these  
3 costs are forward-looking in nature because they are based on the technology that  
4 Verizon VA will use to provision UNEs going forward.

5  
6 **Q. Please respond to AT&T/WorldCom's contention that CLECs should not bear**  
7 **OSS costs. [AT&T/WorldCom Rebuttal Panel at 144-52; Murray at 21.]**

8 A. AT&T/WorldCom are incorrect for at least two reasons. First, OSS are network  
9 elements.<sup>53/</sup> Under the Telecommunications Act of 1996, the CLECs, not Verizon or  
10 end users, must bear the costs of providing unbundled elements, including the costs of  
11 modifying and using Verizon's OSS.

12  
13 Second, economic principles require that costs be recovered from those  
14 participants in the market who cause the costs to be incurred, because when  
15 consumption decisions are guided by prices based on such costs, the highest-valued  
16 bundle of goods and services is produced and consumed using society's scarce  
17 resources. If market participants are induced to consume more of a service than they  
18 would if it were priced at its cost, resources are being wasted; society could be made  
19 better off by consuming less of that service.

20  

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<sup>53/</sup> *Local Competition Order* at 15763, ¶ 516 ("We conclude that operations support systems and the information they contain fall squarely within the definition of 'network element.'").

1 More specifically, requiring that entrants into a regulated market pay the costs  
2 they create by entry ensures that only efficient entry takes place. Economists agree with  
3 this principle because it recognizes that entry into markets previously served by single  
4 suppliers and subsequent competition in those markets is not an end in itself. Rather,  
5 social policy should favor entry and competition where such entry ensures that  
6 customers are made better off by that entry. Where social policy attempts to ensure  
7 entry and survival of suppliers less efficient than incumbents, consumers typically pay  
8 for these protections in higher prices or poorer services.

9  
10 This principle applies with particular force to OSS costs because of the inherent  
11 tradeoff between investments in OSS and non-recurring costs. Even if additional initial  
12 investments and expenditures in more complex OSS systems tend to reduce non-  
13 recurring costs, the *total* economic cost of the OSS function could be higher. It does not  
14 pay to automate every transaction, and it is not necessarily cost effective to minimize  
15 human intervention; rather, there is a trade-off between incurring higher up-front costs  
16 in constructing more sophisticated systems and incurring lower transactional costs when  
17 those systems are used in the service provisioning process. If the cost causation  
18 principle is not reflected equally in the prices paid to recover both of these types of  
19 costs, entrants will demand inefficient capital-intensive systems even for complex, one-  
20 of-a-kind transactions (or will forego developing their own systems when doing so  
21 would be more efficient), and costs to telecommunications users will be higher than  
22 necessary. The best way to determine what systems should be built is to permit market  
23 forces (through price signals) to provide the answer.

1  
2 **Q. Do you agree with AT&T/WorldCom’s claim that if CLECs are required to bear**  
3 **OSS costs, Verizon VA will create inefficient OSS and have an incentive to**  
4 **overbuild its OSS? [AT&T/WorldCom Rebuttal Panel at 146, 152-53.]**

5 A. No. Verizon VA’s costs are scrutinized by the CLECs and by regulatory bodies, and  
6 the notion that Verizon VA or any incumbent could recover the costs for “overbuilding”  
7 its OSS, or creating inefficient OSS, is specious. AT&T/WorldCom’s claim that “[t]he  
8 only way to create an incentive for Verizon to comply with the mandate to open its  
9 markets to competition in the most efficient manner possible would be to force Verizon  
10 to bear the cost of creating its own gateway”<sup>54/</sup> is without foundation and self-serving,  
11 and would result in the violation of basic economic principles.

12  
13 **Q. Please respond to AT&T/WorldCom’s contention that “government mandates,”**  
14 **not the CLECs, are responsible for OSS costs. [AT&T/WorldCom Rebuttal Panel**  
15 **at 145.]**

16 A. The notion that “government mandates” are causally responsible for OSS costs is  
17 incorrect. In the telecommunications area, regulatory bodies have frequently required  
18 regulated firms to undertake costly investments that are subsequently recovered from  
19 the customers who use the facilities. More important, as discussed above, not only did  
20 the Act *mandate* that ILECs provide access to their OSS, it explicitly *mandated* that the  
21 costs of doing so be recovered from the CLECs.

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<sup>54/</sup> AT&T/WorldCom Rebuttal Panel at 152-53.

1  
2 **Q. AT&T/WorldCom propose that access to OSS costs be recovered from Virginia**  
3 **end users. [AT&T/WorldCom Rebuttal Panel at 147-48.] Is this proposal**  
4 **efficient and competitively neutral?**

5 A. No. In competitive markets, firms recover costs from the customers who cause the  
6 costs. For example, AT&T/WorldCom recover the OSS costs they incur to serve  
7 resellers from the prices they charge those resellers, not from their retail customers.  
8 Were they to try to raise retail prices to subsidize wholesale customers, they would face  
9 two insurmountable problems:

- 10 • a competitive handicap in the retail market so that other equally efficient facilities-  
11 based carriers could underprice them, and  
12 • an inefficient margin between the prices of their resold services and their retail  
13 services so that an equally efficient reseller could underprice them.

14  
15 Moreover, pricing wholesale services below the total cost of those services  
16 would result in the oversupply and over-consumption of ILEC wholesale services,  
17 relative to the quantities that would be produced when prices are economically based on  
18 cost. Such mis-pricing would create (i) allocative efficiency losses because wholesale  
19 services would not recover their costs, and (ii) technical efficiency losses because  
20 pricing wholesale services below cost would inefficiently discourage facilities-based  
21 entry from otherwise more efficient competitors.  
22

1    **Q.     Do you agree with AT&T/WorldCom’s claims that OSS costs are a barrier to**  
2       **entry? [AT&T/WorldCom Rebuttal Panel at 145-46.]**

3    **A.     No. As Dr. Shelanski explained in his rebuttal testimony, charging CLECs for the costs**  
4       **they cause is not a “barrier to entry,” but merely ensures that they pay the costs of entry**  
5       **and therefore make efficient entry decisions.<sup>55/</sup> Moreover, Verizon VA incurs the same**  
6       **or similar costs. For example, Verizon has already borne the substantial costs of**  
7       **developing and implementing its OSS. It cannot, therefore, be a barrier to entry if the**  
8       **cost of modifying those systems to serve new entrants is borne by the entrants. We**  
9       **further note that Verizon VA has proposed to spread recovery of its OSS costs over a**  
10      **10-year period, which will lower the “burden” on CLECs substantially. Indeed, since**  
11      **Verizon must bear the full capital costs of its OSS — with no assurance regarding the**  
12      **duration or degree to which CLECs will purchase UNEs from Verizon, rather than**  
13      **using their own networks to compete — Verizon could even end up subsidizing CLEC**  
14      **entry.**

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<sup>55/</sup>       Shelanski Rebuttal at 15-16.

1 **IV. VERIZON'S APPROACH TO NON-RECURRING COSTS IS APPROPRIATE.**  
2 **(JDPL ISSUES II-1-A TO II-1-C; II-2-A TO II-2-C)**  
3

4 **Q. Is Ms. Murray correct that Verizon VA's study is flawed because economic theory**  
5 **does not support computing non-recurring costs differently from recurring costs?**  
6 **[Murray Rebuttal at 4, 41-49.]**

7 A. No. Rather than computing non-recurring and recurring costs differently, Verizon VA  
8 bases these costs on the same evolving forward-looking network. As explained in  
9 Verizon VA's direct testimony, both recurring and non-recurring costs should be  
10 estimated based on the network that Verizon VA expects to efficiently deploy over  
11 time, and Verizon VA has used an approach that captures these costs as fully as  
12 possible.<sup>56/</sup> Given the tremendous complexity of this task, Verizon VA estimates  
13 recurring costs based on the assumption that the most efficient network technologies are  
14 deployed throughout its network; and it has estimated non-recurring costs using  
15 forward-looking technology that will likely be used at the end of the planning period.  
16 Thus, Verizon VA's recurring and non-recurring cost studies are consistent with the  
17 theoretically correct approach.

18  
19 **Q. Will using different technology assumptions for non-recurring costs and recurring**  
20 **costs allow Verizon to recover more than its forward looking costs, as Ms. Murray**  
21 **claims? [Murray Rebuttal at 4, 47-49.]**

22 A. No. The differences in technology mixes between the studies are the result of proper  
23 consideration of the evolution of the forward-looking network, as we explain below.

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<sup>56/</sup> Gordon Direct at 17, 28-31; Shelanski Direct at 32-35.

1 Since the methods that Verizon VA uses for each study are correct, and its recurring  
2 cost approach tends to understate costs for reasons explained in Dr. Gordon's and Dr.  
3 Shelanski's direct testimony, we disagree with this contention.

4  
5 Verizon's non-recurring cost modeling method is a sound approach designed to  
6 capture the forward-looking costs of taking orders from CLECs and hooking up CLEC  
7 customers to the network over the next several years. It would be absurd to implement  
8 a method that assumed that these costs would not have to be incurred because they  
9 ultimately — after many years when a (still evolving) forward-looking network has  
10 been implemented — may have lower costs in the future. Yet that is what Ms. Murray  
11 and her clients would have the Commission believe should be done solely based on  
12 “consistency.”

13  
14 **Q. Specifically, in what way are Verizon VA's recurring and nonrecurring costs**  
15 **based on the same network?**

16 A. Both studies are motivated by the fundamental proposition stated in the direct  
17 testimony: “[I]t would be appropriate to model the network and costs to fully reflect the  
18 evolving nature of the network as it moves from the current mix of technologies to the  
19 anticipated mix”<sup>57/</sup> The recurring cost study does this with a practical approximation

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<sup>57/</sup> Gordon Direct at 14.

1 that tends to produce lower costs, while the nonrecurring cost study closely follows this  
2 concept.<sup>58/</sup>

3  
4 **Q. How are the long-run incremental costs of specific services (elements) measured in**  
5 **this framework?**

6 A. For a specific element or service, the economic question is following: how are the  
7 firm's forward-looking costs increased by a permanent increase in output of a certain  
8 increment. In the recurring cost study, such an increase in output requires that capacity  
9 be added, which will occur through the deployment of facilities using *forward-looking*  
10 technology. In principle, assuming that the forward-looking replacement plant mix will  
11 be used to serve all *incremental* demand is reasonable because new technology typically  
12 will be used to serve added growth. However, no one believes that only new plant will  
13 be used to serve all forward-looking demand. Thus, as noted above, and as Ms. Murray  
14 admits, calculating the costs of the new technology to estimate the costs to serve all  
15 forward-looking (total element) demand is merely a device to simplify the calculation of  
16 the forward-looking costs of the evolving network.

17  
18 For non-recurring costs, the same question is asked, the same forward-looking  
19 and evolving network is assumed, but the details of the cost estimate are crucially  
20 different. Consider a permanent increase in the level of a non-recurring activity (*e.g.*,  
21 caused by a higher level of churn induced by more competition and/or CLEC orders),

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<sup>58/</sup> *Id.* at 21.

1 holding constant the level of all other outputs (*e.g.*, assume the same average number of  
2 UNE loops, but twice as many connects and disconnects in a given time period). What  
3 would occur is more non-recurring activity (*e.g.*, service orders) *using the systems in*  
4 *place as the network evolves*; in other words, unlike the case with recurring costs, the  
5 additional “output” does not require additional capacity in the form of new (forward-  
6 looking) facilities. To the extent that these activities can be performed at lower costs as  
7 new network equipment is phased in, the incremental costs would decrease over time.  
8 *The key point is that, in order to charge customers for the costs they impose at the time*  
9 *they order service, the actual time pattern of non-recurring costs must be used.* And  
10 this is exactly what Verizon VA’s study accomplishes over the forward-looking  
11 window for which the next round of non-recurring charges are likely to be in place.  
12

13 **Q. In light of this analysis, please describe how Ms. Murray’s example [Murray**  
14 **Rebuttal at 45-49] misses the mark.**

15 A. Ms. Murray’s example implicitly assumes that recurring and non-recurring costs are  
16 produced in fixed proportions; therefore, she never asks the proper question of how the  
17 firm’s costs would increase if non-recurring activities increased by themselves. To see  
18 the impact of her erroneous fixed-proportions assumption, suppose that the costs in her  
19 example represent one unit each of recurring and non-recurring activities. Thus, an  
20 increase of one unit of recurring activities increases costs by \$150 (\$100 investment  
21 plus \$50 operating), based on the proposition that the new system determines the  
22 recurring cost. On the other hand, if non-recurring costs increased by one unit, this  
23 would increase the total cost for the old and new systems by \$45 and \$25, respectively

1 in her example, and the economic cost of that increase depends on whether the non-  
2 recurring activity takes place on the new or old system.

3  
4 **Q. What then is your conclusion concerning non-recurring costs?**

5 A. Verizon VA's model estimates non-recurring costs over time as they are incurred. Ms.  
6 Murray, by contrast, disregards the time pattern of these costs. In so doing, the model  
7 she advocated violates the principle stated in 47 C.F.R. § 51.507(a) that, "[e]lement  
8 rates shall be structured consistently with the manner in which the costs of providing the  
9 elements are incurred." Accordingly, the Commission should adopt Verizon VA's  
10 approach to estimating nonrecurring costs.

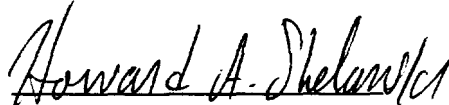
11  
12 **Q. Does this conclude your testimony?**

13 A. Yes.

### Declaration of Howard Shelanski

I declare under penalty of perjury that the foregoing is true and correct. Executed this

19<sup>th</sup> day of September, 2001.

  
Howard Shelanski

### Declaration of Timothy Tardiff

I declare under penalty of perjury that the foregoing is true and correct. Executed this

19<sup>th</sup> day of September, 2001.

  
Timothy Tardiff